

XXVII. *Abstract of a Register of the Barometer, Thermometer, and Rain at Lyndon in Rutland; with the Rain in Hampshire and Surrey, in 1787. Also some Account of the Annual Growth of Trees. By Thomas Barker, Esq. Communicated by Thomas White, Esq. F.R.S.*

Read June 12, 1788.

		Barometer.			Thermometer.						Rain.			
					In the House.			Abroad.			Lyndon	Hampshire. Sel- bourn.	Surrey. Fyfield.	S. Lam- berth
		Highest	Lowest	Mean.	High.	Low.	Mean	High.	Low.	Mean				
		Inches.	Inches.	Inches.	°	°	°	°	°	°	Inch.	Inch.	Inch.	Inch.
Jan.	Morn.	30,13	29,11	29,70	45	34 $\frac{1}{2}$	39	47	25	35	0,415	0,88	0,43	0,60
	Aftern.				46	34 $\frac{1}{2}$	40	51	31	39 $\frac{1}{2}$				
Feb.	Morn.	29,85	28,15	29,40	47	41	44	47 $\frac{1}{2}$	27	39	0,860	3,67	3,40	1,68
	Aftern.				48 $\frac{1}{2}$	41 $\frac{1}{2}$	45	53 $\frac{1}{2}$	37	46				
Mar.	Morn.	30,02	28,47	29,30	49	41	45 $\frac{1}{2}$	49	31	40	1,782	4,28	3,80	1,62
	Aftern.				50 $\frac{1}{2}$	42	46 $\frac{1}{2}$	54	3 $\frac{1}{2}$	48 $\frac{1}{2}$				
Apr.	Morn.	30,00	28,54	29,47	50	44	46 $\frac{1}{2}$	50	35 $\frac{1}{2}$	42	1,721	0,74	0,69	0,93
	Aftern.				50 $\frac{1}{2}$	45	47 $\frac{1}{2}$	56 $\frac{1}{2}$	42 $\frac{1}{2}$	50				
May	Morn.	29,86	28,80	29,47	60 $\frac{1}{2}$	42 $\frac{1}{2}$	52 $\frac{1}{2}$	55	3	48 $\frac{1}{2}$	1,573	2,06	1,27	1,60
	Aftern.				62	44	54	72 $\frac{1}{2}$	46 $\frac{1}{2}$	59				
June	Morn.	29,76	29,05	29,44	63	51 $\frac{1}{2}$	58	60 $\frac{1}{2}$	46	54 $\frac{1}{2}$	1,800	1,50	1,43	0,68
	Aftern.				64 $\frac{1}{2}$	53	59 $\frac{1}{2}$	77	55	65 $\frac{1}{2}$				
July	Morn.	29,93	28,92	29,36	69	56 $\frac{1}{2}$	60 $\frac{1}{2}$	66	50 $\frac{1}{2}$	57	3,169	6,53	3,50	4,12
	Aftern.				70	57	62	79	63	68				
Aug.	Morn.	29,94	28,74	29,53	70	55 $\frac{1}{2}$	61	63 $\frac{1}{2}$	49 $\frac{1}{2}$	56	1,969	0,83	0,74	0,60
	Aftern.				73	56 $\frac{1}{2}$	63	80	51 $\frac{1}{2}$	67 $\frac{1}{2}$				
Sept.	Morn.	30,01	28,59	29,50	60	53 $\frac{1}{2}$	57	57 $\frac{1}{2}$	42	51	1,225	1,56	1,47	0,78
	Aftern.				60 $\frac{1}{2}$	55	57 $\frac{1}{2}$	65	55	61				
Oct.	Morn.	29,70	28,48	29,26	56	46 $\frac{1}{2}$	51 $\frac{1}{2}$	55	36	46	3,726	5,04	3,44	2,41
	Aftern.				57	47	53	61	44 $\frac{1}{2}$	54 $\frac{1}{2}$				
Nov.	Morn.	29,95	28,50	29,33	52	34	43	49	20	35 $\frac{1}{2}$	1,462	4,09	2,57	1,51
	Aftern.				52 $\frac{1}{2}$	35 $\frac{1}{2}$	43	54 $\frac{1}{2}$	30 $\frac{1}{2}$	42				
Dec.	Morn.	29,93	28,75	29,22	48	34	41	48 $\frac{1}{2}$	26	37	3,085	5,06	3, 8	3,87
	Aftern.				49	35	41 $\frac{1}{2}$	55 $\frac{1}{2}$	30 $\frac{1}{2}$	41				
Inches											22,787	36,24	25,82	20,40

The year began dry, with but little and moderate frost, and proved a pleasant and open winter: as February approached it grew mild, was fine, forward, and drying, and continued forward all March, but more showery the beginning and end of that month. With April the weather turned colder; east and north winds the first three weeks stopped vegetation, and after a showery latter end of the month. May had too much cloudy weather and cold winds as blasted the apples, and hindered the growth of grass; but being dry was not unpleasant, and suited the grain very well, which proved good.

The bees were remarkably forward in drones this year, which they had the middle of April; but the cold winds and cloudy weather afterward so hindered their working, that they killed their drones in May, and were backwarder the beginning of June than they had been several weeks before.

There were several frosty mornings in May, and one on the 7th of June, so sharp as to kill the young shoots on some of the oaks and ash trees in the meadows. The season was in general dry the first half of the year, and the crops of hay were light. It was a very cool summer; what hot weather there was came toward the end of June, the beginning of July, and beginning of August.

July 6, a very showery season began, which continued with but few intermissions to the end of the year, and was more remarkable for the frequency than the quantity of rain, which was not very great here. This made great plenty of grass and turneps; but was very troublesome in hay-time and harvest, yet more hindering than real hurting. The wettest months were July, October, and December. The chief fair fits were a hot week in August, and a clear frosty week at the

full moon in November. The latter part of the summer was very cool, the autumn mild, and not very frosty; but some great storms, and in the countries where they had more rain than we, there were great floods. At the full moon in December there came a week's frost and a large snow, which was not quite gone at the end of the year.

On the annual growth of trees.

Oaks.

	Girth.		Girth. Rate.			Girth. Rate.		
		In.		In.	In.		In.	In.
1	—	—	1772	19	—	1787	41	1.5
2	1758	13	1772	33	1.4	1787	55 $\frac{1}{2}$	1.5
3	1758	18 $\frac{1}{2}$	1772	40 $\frac{1}{2}$	1.6	1787	58	1.2
4	—	—	—	—	—	1787	156 $\frac{1}{2}$	1.3
5	1758	41	1772	56	1.1	1787	77 $\frac{1}{2}$	1.4
6	1744	20	1765	45	1.2	1787	74 $\frac{1}{2}$	1.3
7	1758	18	1772	36	1.3	1787	54	1.2
8	1758	76	1772	93 $\frac{1}{2}$	1.25	1787	109 $\frac{1}{2}$	1.1
9	1751	124	1772	147	1.1	1787	164 $\frac{1}{2}$	1.2
10	1744	23 $\frac{1}{2}$	1765	49	1.2	1787	74	1.1
11	1744	69 $\frac{1}{2}$	1772	99	1.1	1787	115	1.1
12	1744	14	1765	43	1.4	1787	60	0.8
13	1747	82	1765	99 $\frac{1}{2}$	1.0	1787	120 $\frac{1}{2}$	1.0
14	1744	21	1765	45	1.1	1787	64	0.9
15	1762	106 $\frac{1}{2}$	1772	117	1.0	1787	130	0.9
16	1751	117	1770	132	0.8	1787	149 $\frac{1}{2}$	1.0
17	1751	114	1770	131 $\frac{1}{2}$	0.9	1787	145	0.8
18	1751	84 $\frac{1}{2}$	1772	101	0.8	1787	109	0.5
19	1744	41	1765	58 $\frac{1}{2}$	0.8	1787	69	0.5

Ash.

Afh.

		Girth.		Girth.	Rate.		Girth.	Rate.
		In.		In.	In.		In.	In.
20	—	—	1772	71	—	1787	106	2.3
21	1745	23½	1765	67	2.2	1787	111	2.0
22	1744	22	1765	55½	1.6	1787	92	1.7
23	1744	32	1765	61	1.4	1787	94½	1.5
24	1744	66	1765	91½	1.4	1787	114	1.0
25	1751	20	1772	45	1.25	1782	58½	0.9
26	1765	55	1772	64	1.2	1787	75½	0.9
27	1747	77	1765	97	1.0	1787	116½	1.0
28	—	—	1772	67½	—	1787	82	1.0
29	1744	56	1765	77½	1.0	—	—	—
30	1755	51½	1772	67	0.9	1787	80	0.9
31	—	—	1765	74	—	1781	89	0.9
32	1751	45½	1772	67	1.0	1787	77	0.7
33	1744	17½	1765	34	0.8	1787	52	0.8
34	1744	17	1765	36½	0.9	1787	52½	0.7
35	1744	20	1772	40	0.7	—	—	—
36	1745	13½	1772	31½	0.7	1787	41	0.6

Elms.

37	1755	0	1772	42	2.5	1787	77	2.3
38	1744	28	1765	60	1.5	1787	96	1.6
39	1744	37	1758	50	0.9	1781	72	1.0
40	1744	46	1758	58	0.9			
41	1744	48	1758	59	0.8			

As I do not remember to have seen any particular account of the annual growth of trees, I here send an abstract of some observations I have made on a considerable number, for a good many years back; and have distinguished in the table the different kinds, and placed the most growing first.

Except the two first ash trees, I find the growth of oak and ash to be nearly the same. I have some of both sorts planted at the same time, and in the same hedges, of which the oaks are the largest, but there is no certain rule as to that. The common growth of an oak or an ash is about an inch in girth in a year; some thriving ones will grow an inch and an half; the unthriving ones not so much, some probably less than any here, for I chose in general to measure those that seemed thriving.

Great trees grow more timber in a year than small ones; for if the annual growth be an inch, a coat of one-sixth of an inch is laid on all round, and the timber added to the body every year is its length multiplied into the thickness of the coat, and into the girth, and therefore the thicker the tree is, the more timber is added. The body of N° 9 is 9 feet long, the girth under the bark above 13 feet, the thickness of the coat $\frac{1}{6}$ of an inch or $\frac{1}{72}$ of a foot: then $9 \times 13 \times \frac{1}{72}$ is one foot and six-tenths of timber added in a year to the body, beside the increase on all the branches, and it has a very great head; one limb squares 20 inches, and is itself equal to a moderate tree.

The hedge in which N° 4. grows was planted in 1665, probably the tree is not older than that year; it has therefore increased in girth about 1.3 inch every year since it was set.

The oak, N° 5. I believe sowed itself; and I did not know there was such an one till about the year 1740, when the hedge being cut, the tree was found, and might be then 20 years old or more.

The two ash trees N° 20. and 21. grow much faster than any of the rest, but are neither of them handsome growing trees. N° 20. has several seams where the bark is parting from
the

the wood, and are likely to be dead sides. N° 21. was about as thick as a walking-stick in 1730. It does not grow round and smooth, has no dead side, but several deep furrows in it, so that these two trees seem to grow faster than they can grow well.

In 1733, N° 23, was about as thick as a pitch-fork shaft.

The elm, N° 37. was planted with the quick in January, 1756, and cut down to the ground as that was. It is a kind of witch elm, which grow faster than the upright ones, and with great round heads. N° 38. is so far like a witch elm, that at ten feet high it parts into a great head; but it grows much straighter and handsomer than that kind of tree generally does.

Planted trees at a distance from the hedge seem not to grow so large as sown trees in the hedge: whether from the check the roots receive in transplanting, or that the trees not in hedges are more rubbed by the cattle; perhaps both causes concur when the trees are transplanted large; but trees set in quicks, when very small, do not seem to be hurt by it. I have some oaks set with the quick, and a row of acorns was some years after sown against it; but in between forty and fifty years they have not overtaken the planted ones in size; the sown seem however inclined to be taller trees than the planted.

